

REMARKS

Claims 1-53 were previously pending in this application. By this amendment, Applicant is canceling claims 1-35 and 38-53 without prejudice or disclaimer. New claims 54-72 have been added. Support for the new claims can be found throughout the specification, in particular on pages 2 and 3, as well as in the claims as originally filed. As a result claims 36, 37 and 54-72 are pending for examination with claim 36 being an independent claim. No new matter has been added.

Rejection Under 35 U.S.C. §101

The Examiner rejected claims 36 and 37 under 35 U.S.C. §101 as being claims directed to non-statutory subject matter. The Examiner maintains that the claims appear to lack any physical result performed outside of the computer and represent processes that merely manipulate numbers, abstract concepts or ideas, or signals.

Applicant respectfully traverses the Examiner's rejection of claims 36 and 37. Firstly, the Examiner states that to be statutory, a computer-related process must either result in a physical transformation outside of the computer or be limited to a practical application within the technological arts. Applicant maintains that the computer-related process of claims 36 and 37 satisfy at least the latter. According to AT&T Corp. v. Excel Communications, Inc., et al. (172 F.3d at 1358, 1999), a claimed computer-related process is statutory under 35 U.S.C. §101 if the claimed process applies its mathematical operations to produce a useful, concrete and tangible result or, in other words, a practical application. Step (C) of independent claim 36 clearly limits the computer-related process to the practical application of determining whether complete building blocks of a query sequence match those of a polysaccharide. This limitation, therefore, provides the practical application that necessarily renders the claims statutory. Furthermore, claiming the process for this particular practical application does not pre-empt other uses of the mathematical operations of the process, which is a clear indication that the claims do not merely encompass the manipulation of numbers, abstract concepts or ideas, or signals.

Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claims 36 and 37 under 35 U.S.C. §101.

Rejection Under 35 U.S.C. §112

The Examiner rejected claims 36 and 37 under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Examiner maintains that the term “complete building block” is vague and indefinite. The Examiner states that it is unclear what is considered to be a complete versus incomplete building block.

Applicant respectfully traverses the rejection of the claims on this basis. Applicant maintains that the specification provides an adequate description of complete building blocks and that based on the teachings provided in the specification as well as the plain meaning of the term, one of ordinary skill in the art would know what is meant by the use of the term. For example, on page 25, lines 1-6, of the specification the differences between complete and basic building blocks are elucidated. This passage specifically states that the term “basic building block” refers to a basic ring structure such as iduronic acid or glucuronic acid but does not include substituents, charges, etc. The complete building block, however, is described as including the exact chemical structure of the basic building block and all of its substituents, charges, etc. Based on these teachings alone, one of ordinary skill in the art would understand what is considered a complete versus an incomplete building block. Namely, that the complete building block includes the basic ring structure of the chemical unit as well as all of its substituents, charges, etc., while an incomplete building block is a chemical unit that is something less. For instance, it lacks one or more substituents or does not include the charge of the complete building block. Applicant, therefore, maintains that the term is not vague and indefinite.

Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claims 36 and 37 under 35 U.S.C. §112, second paragraph.

Rejection Under 35 U.S.C. §102

The Examiner rejected claims 36 and 37 under 35 U.S.C. §102(b) as being anticipated by Claverie et al., which provides a method of comparing nucleotide sequences. The Examiner maintains that as the definition of “polysaccharide” is not specified in the instant application, DNA can be reasonably interpreted to be a polysaccharide.

Applicant respectfully disagrees. DNA and polysaccharides are treated not only separately in the instant specification but also in the related art. One of skill in the art would not interpret claims 36 and 37 to encompass determining whether or not complete building blocks of a query sequence matches the complete building blocks of a DNA sequence. The Examiner is reminded that unless the specification provides a definition inconsistent with the known meaning, terms are to be interpreted according to the meanings ascribed to them in the art. Any basic biochemistry, genetics or molecular biology text separates DNA or nucleotide sequences from polysaccharides. The assertion that DNA can be interpreted to be a polysaccharide is not reasonable.

Additionally, the claims must be interpreted in light of Applicant's specification. Throughout the specification DNA and polysaccharides are consistently described and treated as two separate classes of polymers (see, for example, page 2, lines 21-24; page 5, lines 16-18; page 7, line 30 through page 8, line 5; etc.) Therefore, based on the teachings in the specification and the meaning of the terms as used in the art, the use of the term polysaccharide in the rejected claims clearly does not encompass DNA, and Claverie et al. can not be used as an anticipatory reference against claims 36 and 37.

Furthermore, Claverie et al. does not teach all of the limitations of claims 36 and 37 as required for a reference to be deemed anticipatory. For example, Claverie et al. does not teach performing at least one binary operation. The Examiner seems to interpret "a binary operation" as meaning two separate calculations with two different results, such as, the score and probability results shown in Figure 3B of the Claverie et al. reference. Applicant, however, respectfully disagrees that these two results are representative of a binary operation. No information is even given regarding the calculations performed to obtain these two results. Binary operation, a term that would be recognized by one of ordinary skill in the art, refers to a calculation that is performed on two values or two sets of values. Examples of such calculations are provided in the specification and include, for example, the logical operations, AND, OR, NOT, etc. In this case, the operation is performed on the values of the second data structure and the values of the at least one mask.

Accordingly, withdrawal of the rejection of claims 36 and 37 under 35 U.S.C. §102(b) is respectfully requested.

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CONCLUSION

In view of the foregoing amendments and remarks, this application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicant's representative at the telephone number listed below.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Respectfully submitted,
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